



**[4910-13-P]**

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2018-0027; Product Identifier 2017-NM-118-AD]**

**RIN 2120-AA64**

**Airworthiness Directives; The Boeing Company Airplanes**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Notice of proposed rulemaking (NPRM).

**SUMMARY:** We propose to adopt a new airworthiness directive (AD) for all The Boeing Company Model 787 series airplanes. This proposed AD was prompted by reports that, under certain conditions, the automatic dependent surveillance - broadcast (ADS-B) out function and air traffic control/traffic alert and collision avoidance system (ATC/TCAS) functions can transmit incorrect data. This proposed AD would require an inspection or records review to determine if certain software is installed, the installation of new software for the integrated surveillance system (ISS) operational program software (OPS) if necessary, a software check, and applicable on-condition actions. For certain airplanes, this proposed AD would also require the installation of new software for the ISS OPS and the displays and crew alerting (DCA) database. We are proposing this AD to address the unsafe condition on these products.

**DATES:** We must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: 202-493-2251.
- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.
- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this NPRM, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminister Blvd., MC 110-SK57, Seal Beach, CA 90740-5600; telephone 562-797-1717; Internet <https://www.myboeingfleet.com>. You may view this referenced service information at the FAA, Transport Standards Branch, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221. It is also available on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2018-0027.

### **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2018-0027; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this NPRM, the regulatory evaluation, any comments

received, and other information. The street address for the Docket Office (phone: 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

**FOR FURTHER INFORMATION CONTACT:** Nelson O. Sanchez, Aerospace Engineer, Systems and Equipment Section, FAA, Seattle ACO Branch, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6489; fax: 425-917-6590; email: nelson.sanchez@faa.gov.

**SUPPLEMENTARY INFORMATION:**

**Comments Invited**

We invite you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under the ADDRESSES section. Include “Docket No. FAA-2018-0027; Product Identifier 2017-NM-118-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this NPRM. We will consider all comments received by the closing date and may amend this NPRM because of those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

## **Discussion**

We have received reports indicating that the ADS-B out function and ATC/TCAS functions can transmit incorrect position and pressure altitude information in the data that is used by ATC to coordinate aircraft separation. Under certain conditions, the ADS-B out function has been shown to transmit non-current aircraft data (including latitude, longitude, and pressure altitude) based on coasting from a previous global positioning system (GPS) position. In addition, the ATC/TCAS functions can transmit non-current pressure altitude information on both mode C and mode S transmissions based on coasting from a previous pressure altitude. This condition, if not corrected, could result in potential mid-air collisions.

## **Related Service Information under 1 CFR part 51**

We reviewed Boeing Alert Service Bulletin B787-81205-SB340036-00, Issue 001, dated June 30, 2017. This service information describes procedures for the installation of new software for the ISS OPS (which includes main input/output (IO) software and traffic transponder (XPDR) airborne collision avoidance system (ACAS) software), a software check, and applicable on-condition actions.

We also reviewed Boeing Service Bulletin B787-81205-SB340005-00, Issue 002, dated April 27, 2016. This service information describes procedures for the installation of new software for the ISS OPS and for the DCA database.

This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

## **FAA's Determination**

We are proposing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of these same type designs.

## **Proposed AD Requirements**

This proposed AD would require, for certain airplanes, an inspection or records review to determine if certain software is installed, and if necessary, accomplishment of the actions identified as "RC" (required for compliance) in the Accomplishment Instructions of Boeing Alert Service Bulletin B787-81205-SB340036-00, Issue 001, dated June 30, 2017, described previously, except for any differences identified as exceptions in the regulatory text of this proposed AD.

This proposed AD would also require, for certain airplanes, accomplishing the actions specified in Boeing Service Bulletin B787-81205-SB340005-00, Issue 002, dated April 27, 2016, described previously.

For information on the procedures and compliance times, see this service information at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2018-0027.

## **Differences Between Proposed AD and the Service Information**

The effectivity of Boeing Alert Service Bulletin B787-81205-SB340036-00, Issue 001, dated June 30, 2017, and Boeing Service Bulletin B787-81205-SB340005-00, Issue 002, dated April 27, 2016, is limited to Model 787-8 and 787-9 airplanes with certain line numbers. However, the applicability of this proposed AD includes all Boeing Model 787 series airplanes, because the affected software part numbers, identified in

paragraph (j) of this proposed AD, are rotatable parts. We have determined that these part numbers could later be installed on airplanes that were initially delivered with acceptable software, thereby subjecting those airplanes to the unsafe condition.

### **Costs of Compliance**

We estimate that this proposed AD affects 136 airplanes of U.S. registry. We also estimate that 115 airplanes will require installation and check of new software, and 54 airplanes will require the concurrent installation of other software. We estimate the following costs to comply with this proposed AD:

#### **Estimated costs for required actions**

<b>Action</b>	<b>Labor cost</b>	<b>Parts cost</b>	<b>Cost per product</b>	<b>Cost on U.S. operators</b>
Records Review/Inspection (136 airplanes)	1 work-hour X \$85 per hour = \$85	\$0	\$85	\$11,560
Installation and Check (115 airplanes)	4 work-hours X \$85 per hour = \$340	\$0	\$340	\$39,100
Concurrent Installation (54 airplanes)	1 work-hour X \$85 per hour = \$85	\$0	\$85	\$4,590

We estimate the following costs to do any necessary on-condition actions that would be required. We have no way of determining the number of aircraft that might need these on-condition actions:

#### **Estimated costs of on-condition actions**

<b>Labor cost</b>	<b>Parts cost</b>	<b>Cost per product</b>
4 work-hours X \$85 per hour = \$340	\$0	\$340

According to the manufacturer, some of the costs of this proposed AD may be covered under warranty, thereby reducing the cost impact on affected individuals. We do

not control warranty coverage for affected individuals. As a result, we have included all available costs in our cost estimate.

### **Authority for this Rulemaking**

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

This proposed AD is issued in accordance with authority delegated by the Executive Director, Aircraft Certification Service, as authorized by FAA Order 8000.51C. In accordance with that order, issuance of ADs is normally a function of the Compliance and Airworthiness Division, but during this transition period, the Executive Director has delegated the authority to issue ADs applicable to transport category airplanes to the Director of the System Oversight Division.

### **Regulatory Findings**

We determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct

effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify this proposed regulation:

(1) Is not a “significant regulatory action” under Executive Order 12866,  
(2) Is not a “significant rule” under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),

(3) Will not affect intrastate aviation in Alaska, and

(4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

#### **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

#### **The Proposed Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

#### **PART 39 - AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

#### **§ 39.13 [Amended]**

2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):

**The Boeing Company:** Docket No. FAA-2018-0027; Product Identifier 2017-NM-118-AD.



**(a) Comments Due Date**

We must receive comments by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE Federal Register].

**(b) Affected ADs**

None.

**(c) Applicability**

This AD applies to all The Boeing Company Model 787 series airplanes, certificated in any category.

**(d) Subject**

Air Transport Association (ATA) of America Code 34, Navigation.

**(e) Unsafe Condition**

This AD was prompted by reports that, under certain conditions, the automatic dependent surveillance - broadcast (ADS-B) out and air traffic control (ATC)/traffic alert and collision avoidance system (TCAS) functions can transmit incorrect position and pressure altitude information in the data that is used by ATC to coordinate aircraft separation. We are issuing this AD to prevent the transmission of incorrect position and pressure altitude data, which could result in potential mid-air collisions.

**(f) Compliance**

Comply with this AD within the compliance times specified, unless already done.

**(g) Inspection or Records Review**

For airplanes that have an original certificate of airworthiness or export certificate of airworthiness issued on or before the effective date of this AD: Within 12 months after the effective date of this AD, inspect to determine if integrated surveillance system (ISS)

operational program software (OPS) part number COL40-0010-0100 or COL46-0007-0100 is installed. A review of airplane maintenance records is acceptable in lieu of this inspection if the part number of the software can be conclusively determined from that review.

**(h) Required Actions**

If, during any inspection or records review required by paragraph (g) of this AD, any ISS OPS part number COL40-0010-0100 or COL46-0007-0100 is found: Within 12 months after the effective date of this AD, do all applicable actions identified as “RC” (required for compliance) in, and in accordance with, the Accomplishment Instructions of Boeing Alert Service Bulletin B787-81205-SB340036-00, Issue 001, dated June 30, 2017.

**(i) Additional Actions for Group 1 Airplanes**

For Group 1 airplanes identified in Boeing Alert Service Bulletin B787-81205-SB340036-00, Issue 001, dated June 30, 2017: Prior to accomplishment of the actions required by paragraph (h) of this AD, install new software for the ISS OPS and the displays and crew alerting (DCA) database, in accordance with the Accomplishment Instructions of Boeing Service Bulletin B787-81205-SB340005-00, Issue 002, dated April 27, 2016.

**(j) Parts Installation Prohibition**

As of the effective date of this AD, no person may install ISS OPS part number COL40-0010-0100 or COL46-0007-0100 on any airplane, except in accomplishment of the actions required by paragraph (i) of this AD.

**(k) Credit for Previous Actions**

This paragraph provides credit for the actions specified in paragraph (i) of this AD, if those actions were performed before the effective date of this AD using Boeing Service Bulletin B787-81205-SB340005-00, Issue 001, dated December 11, 2015.

**(l) Alternative Methods of Compliance (AMOCs)**

(1) The Manager, Seattle ACO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in paragraph (m)(1) of this AD. Information may be emailed to: 9-ANM-Seattle-ACO-AMOC-Requests@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(3) An AMOC that provides an acceptable level of safety may be used for any repair, modification, or alteration required by this AD if it is approved by the Boeing Commercial Airplanes Organization Designation Authorization (ODA) that has been authorized by the Manager, Seattle ACO Branch, to make those findings. To be approved, the repair method, modification deviation, or alteration deviation must meet the certification basis of the airplane, and the approval must specifically refer to this AD.

(4) For service information that contains steps that are labeled as RC, the provisions of paragraphs (l)(4)(i) and (l)(4)(ii) of this AD apply.

(i) The steps labeled as RC, including substeps under an RC step and any figures identified in an RC step, must be done to comply with the AD. If a step or substep is labeled “RC Exempt,” then the RC requirement is removed from that step or substep. An AMOC is required for any deviations to RC steps, including substeps and identified figures.

(ii) Steps not labeled as RC may be deviated from using accepted methods in accordance with the operator’s maintenance or inspection program without obtaining approval of an AMOC, provided the RC steps, including substeps and identified figures, can still be done as specified, and the airplane can be put back in an airworthy condition.

**(m) Related Information**

(1) For more information about this AD, contact Nelson O. Sanchez, Aerospace Engineer, Systems and Equipment Section, FAA, Seattle ACO Branch, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6489; fax: 425-917-6590; email: [nelson.sanchez@faa.gov](mailto:nelson.sanchez@faa.gov).

(2) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminister Blvd., MC 110-SK57, Seal Beach, CA 90740-5600; telephone 562-797-1717; Internet <https://www.myboeingfleet.com>. You may view this referenced service information at the FAA, Transport Standards Branch, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221.

Issued in Renton, Washington, on January 25, 2018.

Michael Kaszycki,  
Acting Director,  
System Oversight Division,  
Aircraft Certification Service.

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